Kramer Electronics, Ltd.

USER MANUAL

Model:

PT-101Hxl

HDMI Repeater

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Congratulations on purchasing your **PT-101Hxl** *HDMI Repeater*, which is ideal for:

- Multimedia installations
- Home cinema installations

The package includes the following items:

- **PT-101Hxl** *HDMI Repeater*
- Power adapter (5V DC)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

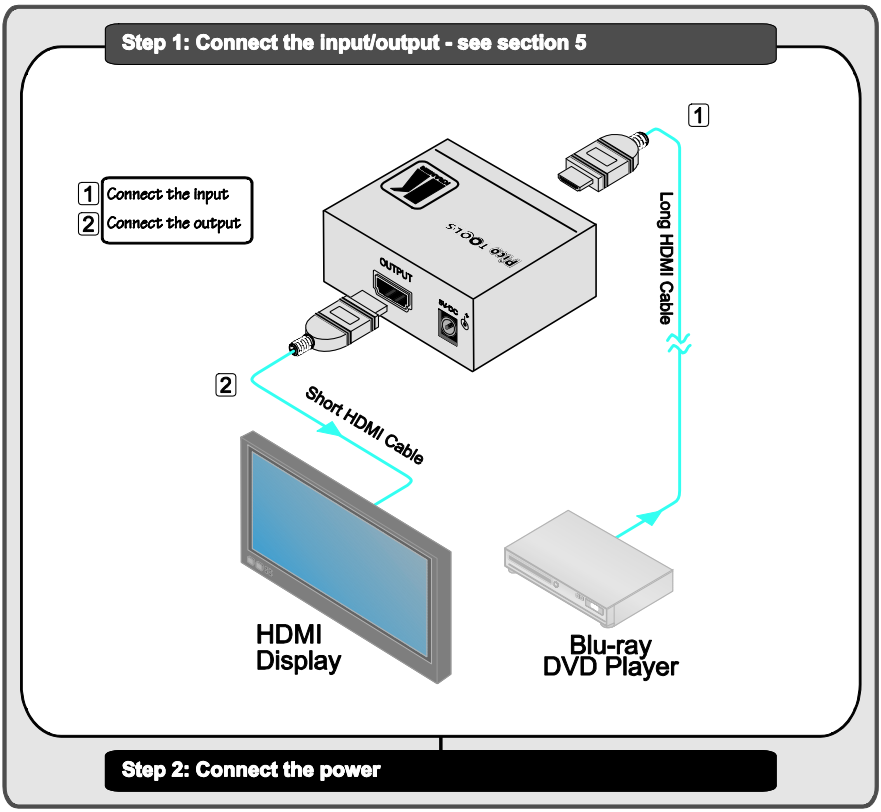
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from our Web site: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

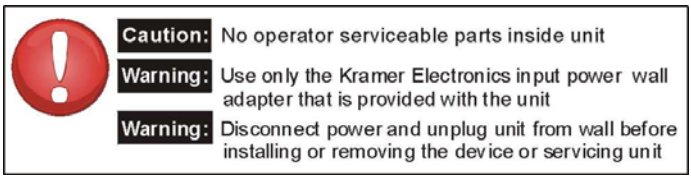
The Kramer Pico TOOLS **PT-101Hxl** is a high-quality repeater for HDMI signals that connects between an HDMI source and an HDMI display. For 1080p resolution, it extends the transmission range up to 15m (50ft).

The **PT-101Hxl** features:

- A maximum data rate of 2.25Gbps
- HDTV compatibility
- HDMI and HDCP compliance
- Kramer Equalization & re-Klocking™ Technology that rebuilds the digital signal to travel longer distances.

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **PT-101Hxl** away from moisture, excessive sunlight and dust



3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all digital[1] audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality. Note that Kramer Electronics Limited is an HDMI Adopter and an HDCP Licensee.

1 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

In particular, HDMI:

- Provides a simple[1] interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy[2] cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio[3] on a single cable
- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements
- Benefits consumers by providing superior, uncompressed digital video quality via a single cable[4], and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play

HDMI has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p/60), as well as standard definition formats such as NTSC or PAL.

3.2 About HDCP

The High-Bandwidth Digital Content Protection (HDCP) standard[5], protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

1 With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced

2 HDMI technology has been designed to use standard copper cable construction at up to 15m

3 HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

4 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

5 Developed by Intel

4 Your PT-101Hxl HDMI Repeater

Figure 1 and Table 1 define the **PT-101Hxl** *HDMI Repeater*:

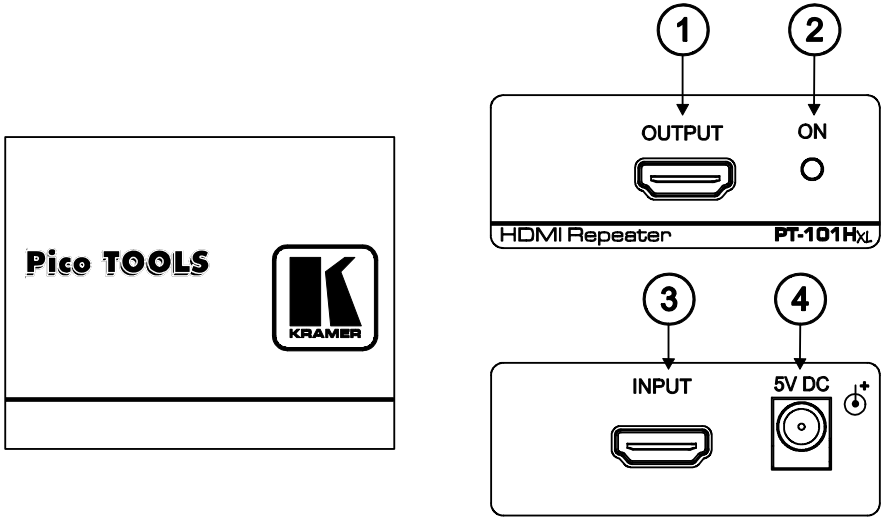


Figure 1: PT-101Hxl HDMI Repeater

Table 1: PT-101Hxl HDMI Repeater Features

#	Feature	Function
1	*OUTPUT* Connector	Connects to the HDMI acceptor
2	*ON* LED	Illuminates when receiving power. The POWER LED is colored: Green, when the 5V DC power source is connected but no input signal is received, Red, when an input signal is received and the 5V DC power source is disconnected, Orange, when both the 5V DC power source is connected and an input signal is received
3	*INPUT* Connector	Connects to the HDMI source
4	*5V DC*	+5V DC connector for powering the unit

5 Connecting a PT-101Hxl HDMI Repeater

To connect the **PT-101Hxl**, as shown in the example in Figure 2, do the following:

1. Connect the HDMI source (for example, a BluRay DVD player) to the INPUT connector.
2. Connect the OUTPUT connector to an HDMI acceptor (for example, an HDMI display).
3. Connect the 5V DC power adapter to the power socket on the **PT-101Hxl** and connect the adapter to the mains electricity.
   The **PT-101Hxl** can be powered from the HDMI source, but for maximum performance we recommend using the power supply (supplied).

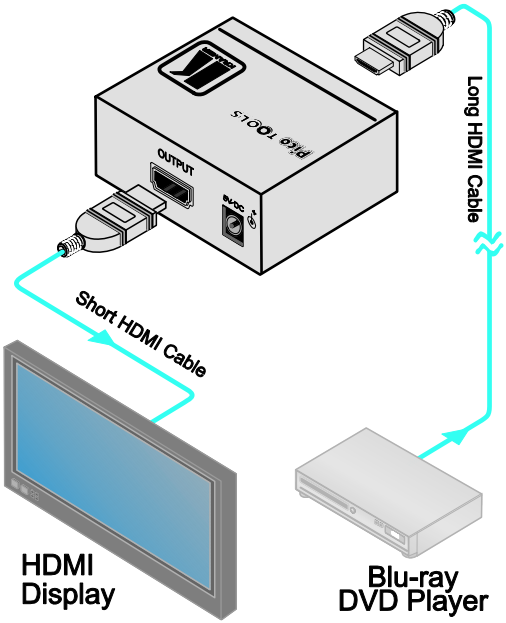


Figure 2: Connecting the PT-101Hxl HDMI Repeater

6 Technical Specifications

Table 2 includes the technical specifications:

Table 2: Technical Specifications[1] of the PT-101Hxl

INPUT:	1 HDMI connector
OUTPUT:	1 HDMI connector
BANDWIDTH:	Supports up to 2.25Gbps bandwidth
COMPLIANCE WITH STANDARDS:	Supports HDMI, HDCP
POWER SOURCE:	5V DC, 280mA
DIMENSIONS:	6.2cm x 5.2cm x 2.4cm (2.5" x 2.1" x 1.0") W, D, H
WEIGHT:	0.07kg (0.16lbs) approx.
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	RK-4PT rack adapter, Kramer HDMI cables[2]

1 Specifications are subject to change without notice

2 For best results, use Kramer cables such as the C-HM/HM series, the C-HM-DM series and/or our HDMI over fiber optics C-FOHM/FOHM series

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for three years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

* FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Caution

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
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